

1 1. A support for an integrated circuit package
2 extending upwardly from a surface, said support comprising:
3 a first portion arranged to engage said package
4 at a point spaced above the location where said package is
5 electrically connected to said surface; and
6 a second portion connected to said first
7 portion and adapted to prevent movement of said package
8 relative to said surface.

1 2. The support of claim 1, wherein said package is
2 engaged by said first portion on the upper end of said
3 package.

1 3. The support of claim 1, wherein said first
2 portion includes a pair of surfaces which engage said
3 package on two opposed surfaces of said package, sandwiching
4 said package between said first portion.

1 4. The support of claim 3, wherein said support is
2 resiliently biased against the sides of said package.

1 5. The support of claim 3, wherein said support
2 contacts the side edges of said package.

1 6. The support of claim 1, wherein said second
2 portion is directly connected to said surface.

1 7. The support of claim 1, wherein support is made
2 at least in part of a conformal material.

1 8. The support of claim 1, wherein said support is
2 made at least in part of plastic foam.

564760

1 9. The support of claim 8, wherein said support is
2 made of plastic foam with at least one slot formed therein,
3 said slot sized to resiliently engage said package.

1 10. The support of claim 9, wherein said foam
2 includes adhesive on its bottom to secure said foam to said
3 surface.

1 11. The support of claim 9, wherein said foam is
2 heat expandable.

1 12. An integrated circuit package electrically
2 connectable to a surface comprising:
3 a first portion arranged to engage said package
4 at a point spaced above said electrical connection to said
5 surface; and
6 a second portion connected to said first
7 portion, said second portion adapted to prevent movement of
8 said package relative to said surface.

1 13. The package of claim 12, wherein said package
2 is contacted on its upper end.

1 14. The package of claim 12, wherein said first
2 portion includes a pair of surfaces which engage said
3 package on two opposed surfaces of said package, sandwiching
4 said package between said first portion.

1 15. The package of claim 14, wherein said first
2 portion is resiliently biased against the sides of said
3 package.

1 16. The package of claim 14, wherein said first
2 portion contacts the side edges of said package.

1 17. The package of claim 12, wherein said second
2 portion is directly connected to said surface.

1 18. The package of claim 14, wherein said first and
2 second portions are made at least in part of plastic foam.

1 19. The package of claim 18, wherein said portions
2 are made of plastic foam with at least one slot formed
3 therein, said slot sized to resiliently engage said package.

1 20. The package of claim 19, wherein said foam
2 includes adhesive on its bottom to secure said foam to said
3 surface.

1 21. The package of claim 14, wherein said first and
2 second portions are made at least in part of conformal
3 material.

1 22. A device for preventing relative movement
2 between a pair of integrated circuit packages with a tall
3 vertical profile and a surface, said device comprising:

4 a first portion arranged to engage said pair of
5 said packages at a point spaced away from the location of
6 the connection between said packages to said surface; and

7 a second portion connected to said first
8 portion and to said surface.

1 23. The device of claim 22, wherein said packages
2 are contacted on their upper ends.

1 24. The device of claim 22, wherein said first
2 portion includes a pair of surfaces which engage said
3 packages on two opposed surfaces of said packages,
4 sandwiching each of said packages between said first
5 portion.

1 25. The device of claim 24, wherein said first
2 portion is resiliently biased against the sides of said
3 packages.

1 26. The device of claim 24, wherein said first
2 portion contacts the side edges of said packages.

1 27. The device of claim 22, wherein said second
2 portion is directly connected to said surface.

1 28. The device of claim 24, wherein said portions
2 are made at least in part of conformal material.

1 29. The device of claim 24, wherein said portions
2 are made at least in part of plastic foam.

1 30. The device of claim 29, wherein said portions
2 are made of plastic foam with at least one slot formed
3 therein, said slot sized to resiliently engage said
4 packages.

1 31. The device of claim 30, wherein said foam
2 includes adhesive on its bottom to secure said foam to said
3 surface.

1 32. The device of claim 30, wherein said foam is
2 heat expanded.

1 33. An electronic device, comprising:
2 a plurality of integrated circuit packages; and
3 a surface electrically connected to each of
4 said packages; and
5 a support arranged to engage each of said
6 packages at a point spaced above said surface to prevent
7 movement of said packages relative to said surface.

1 34. The device of claim 33, wherein each of said
2 packages is contacted on its upper end.

1 35. The device of claim 33, wherein said first
2 portion includes a pair of surfaces which engage each of
3 said packages on two opposed surfaces, sandwiching said
4 packages.

1 36. The device of claim 35, wherein said support is
2 resiliently biased against the sides of said packages.

1 37. The device of claim 36, wherein said support
2 contacts the side edges of said packages.

1 38. The device of claim 33, wherein said support is
2 made of a heat conducting material.

1 39. The device of claim 38, wherein said material
2 is a conformal material.

1 40. The device of claim 38, wherein said material
2 is a foam having heat conductive particles dispersed through
3 it to increase its heat conductivity.

1 41. The device of claim 37, wherein said support
2 includes outwardly extending tabs arranged to engage
3 depressions in said packages.

1 42. The device of claim 33, wherein said support is
2 directly connected to said surface.

1 43. The device of claim 35, wherein said support is
2 made at least in part of plastic foam.

1 44. The device of claim 43, wherein said support is
2 made of plastic foam with a plurality of one slots formed
3 therein, each slot sized to resiliently engage one of said
4 modules.

1 45. The device of claim 44, wherein said foam
2 includes adhesive on its bottom to secure said foam to said
3 surface.

1 46. A computer system, comprising:
2 a printed circuit board;
3 an integrated circuit device connected to and
4 extending away from said board; and
5 a device arranged to engage said device at a
6 point spaced from said connection to said board to prevent
7 relative movement between said board and said device.

1 47. A method for preventing relative movement
2 between a surface and an integrated circuit package
3 connected to said surface, comprising:
4 engaging said package at a point spaced away
5 from the location where said package is connected to said
6 surface; and

7 bracing said package to said surface to prevent
8 movement of said module relative to the surface at the point
9 of engagement of said package.

1 48. The method of claim 47, including the step of
2 engaging a plurality of packages, said packages having
3 opposed side surfaces and an upper edge, side edges, and a
4 bottom edge, said bottom edge connected to said surface,
5 said method including the step of engaging the side surfaces
6 of said packages.

1 49. The method of claim 47, including the step of
2 engaging the top edges of said packages.

1 50. The method of claim 48, including the step of
2 resiliently engaging said packages.

1 51. The method of claim 47, including the step of
2 simultaneously engaging a plurality of adjacently positioned
3 packages and bracing said packages against said surface and
4 against each other.

1 52. The method of claim 47, including the step of
2 telescopically sliding a foam portion over said package into
3 engagement with said surface.

1 53. A method for stabilizing integrated circuit
2 packages mounted on a surface, comprising:
3 inserting a member between two adjacent
4 packages; and
5 bracing said packages against movement relative
6 to said surface.

1 54. The method of claim 53, including the step of
2 bracing said packages against one another.

1 55. The method of claim 54, including the step of
2 bracing said packages directly against said surface.

1 56. The method of claim 53, including the step of
2 sliding a foam portion downwardly between two adjacent
3 packages and resiliently biasing said foam against said
4 packages.

1 57. The method of claim 53, wherein said member
2 does not contact said surface.

1 58. A method for stabilizing integrated circuit
2 packages secured to a surface, comprising:
3 sliding an engaging framework over said
4 packages; and
5 securing said framework to a structure other
6 than said packages.

1 59. The method of claim 58, including the step of
2 also securing said framework to said packages.

1 60. The method of claim 58, including the step of
2 resiliently engaging said packages.

1 61. The method of claim 58, including the step of
2 clamping said packages to said surface.

1 62. A method for stabilizing integrated circuit
2 packages secured to a surface, comprising:
3 arranging a support about a package; and
4 causing said support to expand into engagement
5 with said package.

1 63. The method of claim 62, including heat
2 expanding said support.

1 64. The method of claim 62, including securing said
2 support to said surface.

1 65. A support for an integrated package connectable
2 to a surface, comprising:
3 a member adapted to be positioned about said
4 package, said member being expandable in response to heat
5 into engagement with said package; and
6 a connection between said member and said
7 surface.

1 66. The support of claim 65, wherein said member is
2 made of foam, said member having an opening to receive said
3 package.

1 67. The support of claim 65, wherein said member
2 includes a plurality of openings to receive a plurality of
3 packages.